

## **Claims**

What is claimed is:

- 1           1. An apparatus, including:  
2                 a digital processor to shift a digital baseband signal upward along a  
3                 frequency spectrum by a selected amount to provide a first elevated  
4                 frequency digital baseband signal and a second elevated frequency digital  
5                 baseband signal derived from a phase-shifted version of the digital baseband  
6                 signal.
- 1           2. The apparatus of claim 1, wherein the selected amount is greater than  
2                 about a bandwidth of the digital baseband signal.
- 1           3. The apparatus of claim 1, further including:  
2                 a phase shifting module to receive the digital baseband signal and to  
3                 provide the phase-shifted version of the digital baseband signal.
- 1           4. The apparatus of claim 1, further including:  
2                 a digital mixer to receive the digital baseband signal and to provide the  
3                 first elevated frequency digital baseband signal.
- 1           5. The apparatus of claim 4, further including:  
2                 a digital to analog converter to receive the first elevated frequency digital  
3                 baseband signal and to provide an analog signal.
- 1           6. The apparatus of claim 5, further including:  
2                 an image reject mixer to receive the analog signal and a carrier signal.

1           7. The apparatus of claim 6, further including:  
2                 a filter to pass a non-rejected sideband signal provided by the image  
3 reject mixer.

1           8. The apparatus of claim 1, wherein the digital baseband signal is  
2                 formatted according to an Institute of Electrical and Electronics  
3                 Engineers 802.11 standard.

1           9. An apparatus, including:  
2                 a first digital mixer to receive a digital baseband signal and to provide a  
3                 first elevated frequency digital baseband signal;  
4                 a phase shifting module to receive the digital baseband signal and to  
5                 provide a phase-shifted version of the digital baseband signal;  
6                 a second digital mixer to receive the phase-shifted version of the digital  
7                 baseband signal and to provide a second elevated frequency digital baseband  
8                 signal; and  
9                 an analog to digital converter to receive a selected one of the first  
10                elevated frequency digital baseband signal and the second elevated  
11                frequency digital baseband signal and to provide an analog signal to an  
12                image reject mixer.

1           10. The apparatus of claim 9, further including:  
2                 a surface acoustic wave filter to pass a non-rejected sideband signal  
3                 provided by the image reject mixer.

1           11. The apparatus of claim 9, further including:  
2                 an analog mixer to combine a synthesized carrier signal and a filtered  
3                 sideband signal derived from a non-rejected sideband signal provided by the  
4                 image reject mixer.

1       12. A system, including:  
2             a digital processor to shift a digital baseband signal upward along a  
3       frequency spectrum by a selected amount to provide a first elevated  
4       frequency digital baseband signal and a second elevated frequency digital  
5       baseband signal derived from a phase-shifted version of the digital baseband  
6       signal; and  
7             an omnidirectional antenna to transmit a communications signal derived  
8       from the first elevated frequency digital baseband signal.

1       13. The system of claim 12, further including:  
2             a display to display information associated with the digital baseband  
3       signal.

1       14. The system of claim 12, further including:  
2             a digital mixer to receive a selected one of the digital baseband signal  
3       and the phase-shifted version of the digital baseband signal and to provide  
4       the first elevated frequency digital baseband signal and the second elevated  
5       frequency digital baseband signal, respectively.

1       15. The system of claim 12, further including:  
2             a filter to pass an analog signal provided by a digital to analog converter  
3       to receive a selected one of the first elevated frequency digital baseband  
4       signal and the second elevated frequency digital baseband signal.

1       16. The system of claim 12, wherein the omnidirectional antenna is included  
2       in a multiple-input, multiple-output communications system.

1       17. The system of claim 12, wherein the communications signal is formatted  
2       according to an Advanced Television Systems Committee (ATSC)  
3       standard.

1       18. A method, including:  
2             shifting a digital baseband signal upward along a frequency spectrum by  
3       a selected amount to provide a first elevated frequency digital baseband  
4       signal and a second elevated frequency digital baseband signal derived from  
5       a phase-shifted version of the digital baseband signal.

1       19. The method of claim 18, further including:  
2             mixing the digital baseband signal with a digital carrier frequency to  
3       provide the first elevated frequency digital baseband signal.

1       20. The method of claim 19, further including:  
2             selecting a mixing technique from a Weaver technique and a Norgaard  
3       technique.

1       21. The method of claim 18, further including:  
2             mixing the phase-shifted version of the digital baseband signal with a  
3       digital carrier frequency to provide the second elevated frequency digital  
4       baseband signal.

1       22. The method of claim 18, further including:  
2             converting a selected one of the first elevated frequency digital baseband  
3       signal and the second elevated frequency digital baseband to a first analog  
4       signal and a second analog signal, respectively.

1       23. The method of claim 22, further including:  
2             mixing the first analog signal and the second analog signal with a carrier  
3       frequency to provide an output signal; and  
4       rejecting a resulting lower sideband signal from the output signal.

1       24. The method of claim 23, further including:  
2             processing the output signal to provide a vestigial sideband television  
3       signal.

1       25. The method of claim 18, further including:  
2             formatting the digital baseband signal according to an Institute of  
3       Electrical and Electronics Engineers 802.11 standard.

1       26. An article comprising a machine-accessible medium having associated  
2             information, wherein the information, when accessed, results in a  
3       machine performing:  
4             shifting a digital baseband signal upward along a frequency spectrum by  
5       a selected amount to provide a first elevated frequency digital baseband  
6       signal and a second elevated frequency digital baseband signal derived from  
7       a phase-shifted version of the digital baseband signal.

1       27. The article of claim 26, wherein the information, when accessed, results  
2             in the machine performing:  
3             converting the first elevated frequency digital baseband signal into a first  
4       analog sideband signal; and  
5             converting the second elevated frequency digital baseband signal into a  
6       second analog sideband signal.

1       28. The article of claim 27, wherein the information, when accessed, results  
2             in the machine performing:  
3             combining the first analog sideband signal and the second analog  
4       sideband signal to provide a non-rejected sideband signal modulated by an  
5       analog carrier frequency.

1           29. The article of claim 28, wherein the information, when accessed, results  
2           in the machine performing:  
3           filtering the non-rejected sideband signal to provide a filtered sideband  
4           signal; and  
5           combining the filtered sideband signal with a synthesized carrier signal  
6           to provide a communications signal.